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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/826,174	04/16/2004	Scott C. Hornbostel	PM98.061/3	9881

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EXAMINER

HUGHES, SCOTT A

ART UNIT	PAPER NUMBER
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3663

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/21/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/826,174

Applicant(s)

HORNBOSTEL ET AL.

Examiner

Scott A. Hughes

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 November 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-40 is/are rejected.
- 7) ☒ Claim(s) 21-40 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 11/16/2006 with regards to the objection to the claims as there was insufficient explanation given of support in the patent for the new claim wording have been fully considered and are persuasive. The objection to the claims for not providing an explanation of support in the disclosure is withdrawn.

Applicant's arguments, along with the new oath/declaration, filed 11/16/2006 with regards to the claims being objected to for relying on a defective oath have been considered and are persuasive. The objection based upon the defective oath is withdrawn.

Applicant's arguments regarding the claim rejections based upon 35 USC 101 have been fully considered but are not persuasive.

Applicant's arguments that the examiner in the original patent did not make the 101 rejections are not persuasive, as what happened in the original patent is not binding precedent herein and the current interim guidelines on 35 USC 101 replace previous guidance on 101 issues.

Applicant argues that the "electrical signal" of claims 11-20 is man-made, and that the claims refer to a manufacture and are therefore statutory subject matter. Applicant argues that the signal described in the claims could not be found in nature, and that the signal is tangible, physical, readily detectable and measurable, and is not a carrier of information. Applicant argues that the electrical signal produces a useful, concrete and tangible result. These arguments are not persuasive, and the electrical

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signal claimed in claims 11-20 is not regarded as a manufacture. The electrical signal does not fall into one of the four statutory classes, and therefore is not statutory subject matter.

From the new 101 Guidelines:

Claims that recite nothing but the physical characteristics of a form of energy, such as a frequency, voltage, or the strength of a magnetic field, define energy or magnetism, per se, and as such are nonstatutory natural phenomena. O'Reilly, 56 U.S. (15 How.) at 112-14. Moreover, it does not appear that a claim reciting a signal encoded with functional descriptive material falls within any of the categories of patentable subject matter set forth in § 101.

First, a claimed signal is clearly not a "process" under § 101 because it is not a series of steps. The other three § 101 classes of machine, compositions of matter and manufactures "relate to structural entities and can be grouped as 'product' claims in order to contrast them with process claims." 1 D. Chisum, Patents § 1.02 (1994). The three product classes have traditionally required physical structure or material.

"The term machine includes every mechanical device or combination of mechanical device or combination of mechanical powers and devices to perform some function and produce a certain effect or result." Corning v. Burden, 56 U.S. (15 How.) 252, 267 (1854). A modern definition of machine would no doubt include electronic devices which perform functions. Indeed, devices such as flip-flops and computers are referred to in computer science as sequential machines. A claimed signal has no physical structure, does not itself perform any useful, concrete and tangible result and, thus, does not fit within the definition of a machine.

A "composition of matter" "covers all compositions of two or more substances and includes all composite articles, whether they be results of chemical union, or of mechanical mixture, or whether they be gases, fluids, powders or solids." Shell Development Co. v. Watson, 149 F. Supp. 279, 280, 113 USPQ 265, 266 (D.D.C. 1957), aff'd, 252 F.2d 861, 116 USPQ 428 (D.C. Cir. 1958). A claimed signal is not matter, but a form of energy, and therefore is not a composition of matter.

The Supreme Court has read the term "manufacture" in accordance with its dictionary definition to mean "the production of articles for use from raw or prepared materials by giving to these materials new forms, qualities, properties, or combinations, whether by hand-labor or by machinery." Diamond v. Chakrabarty, 447 U.S. 303, 308, 206 USPQ 193, 196-97 (1980) (quoting American Fruit Growers, Inc. v. Brogdex Co., 283 U.S. 1, 11, 8 USPQ 131, 133 (1931), which, in turn, quotes the Century

Dictionary). Other courts have applied similar definitions. See *American Disappearing Bed Co. v. Arnaelsteen*, 182 F. 324, 325 (9th Cir. 1910), cert. denied, 220 U.S. 622 (1911). These definitions require physical substance, which a claimed signal does not have. Congress can be presumed to be aware of an administrative or judicial interpretation of a statute and to adopt that interpretation when it re-enacts a statute without change. *Lorillard v. Pons*, 434 U.S. 575, 580 (1978). Thus, Congress must be presumed to have been aware of the interpretation of manufacture in *American Fruit Growers* when it passed the 1952 Patent Act.

A manufacture is also defined as the residual class of product. 1 Chisum, § 1.02[3] (citing W. Robinson, *The Law of Patents for Useful Inventions* 270 (1890)).

A product is a tangible physical article or object, some form of matter, which a signal is not. That the other two product classes, machine and composition of matter, require physical matter is evidence that a manufacture was also intended to require physical matter. A signal, a form of energy, does not fall within either of the two definitions of manufacture. Thus, a signal does not fall within one of the four statutory classes of § 101.

On the other hand, from a technological standpoint, a signal encoded with functional descriptive material is similar to a computer-readable memory encoded with functional descriptive material, in that they both create a functional interrelationship with a computer. In other words, a computer is able to execute the encoded functions, regardless of whether the format is a disk or a signal.

These interim guidelines propose that such signal claims are ineligible for patent protection because they do not fall within any of the four statutory classes of § 101. Public comment is sought for further evaluation of this question.

Applicant's arguments with regard to the 35 USC 101 rejections of the rest of the claims are not persuasive.

Applicant's arguments relating to the correlating step and the *Lab Corp.* case are not persuasive, as *Lab Corp.* and the preemption test are not being argued in the 101 rejections. The claims are rejected because the claims, as a whole, do not include a result that is real world and tangible.

Applicant's arguments that the claims produce a real world result, and are therefore tangible are not persuasive. Applicant argues that correlating the recorded seismic data with a reference produces a data record that resembles a conventional seismic record. Applicant argues that at that point, an artisan skilled in seismic surveys knows how to process and interpret the data in order to interpret subsurface structure. This argument is not persuasive as the real world results that applicant argues are present in the invention are not limitations in the claim language.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., interpretation by skilled artisan) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Further, these seem to be directed to the "useful" test of 101, and not the tangibility test of the result of the method.

Applicant argues that another real world result is that the electrical signal, when transmitted into the subsurface, produces a physical change in the subterranean formation, as evidenced by the seismic wave emitted in response. This argument is not persuasive because this physical change is not the result of the method, and therefore there is no tangible result to the method because an electrical signal used in the method creates a seismic response wave.

Claim Objections

Claims 21-40 are objected to because of the following informalities:

The claims do not contain the proper markings to show amendments to the claims in the Reissue application in accordance with 37 CFR 1.173 (especially 1.173 (d) and (g)). All of the newly added claims must be underlined to show that they are matter to be added by Reissue. Any amendment to the claims, *relative to the claims of the original patent*, must be shown by the proper markings as discussed in 37 CFR 1.173 (d). Applicant's latest set of amended claims show the amendments relative to the last set of claims submitted in the prosecution of this Reissue application, not the amendments relative to the claims of the original patent. The claims should contain a proper label relative to the last action (e.g. original, previously presented, amended), and also markings to show any changes *relative to the claims of the original patent being reissued*. Applicant should refer to 37 CFR 1.173 sections (a) to (g) for guidance to making amendments to the claims.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 11-20 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claims are directed to electrical signals, and therefore the claimed invention does not fall within at least one of the four

categories of patent eligible subject matter recited in 35 U.S.C. 101 (process, machine, manufacture, or composition of matter). The signal itself is made up by the process described in the claims for its creation. The applicant is not claiming the process of creating the signal, but is rather claiming the signal itself, which does not fall into one of the categories of eligible subject matter.

Claims 1-10 and 21-40 are rejected under 35 U.S.C. 101 because the invention as claimed does not produce a useful, concrete and tangible result.

The last step of claim 1 states, "correlating said recorded seismic signals with said reference waveform." This last step is not a tangible result since the correlation is an abstract idea that could be performed by a person in their head. The final step does not produce a real world, tangible result or result in a physical transformation.

The last step of claim 8 states, "summing said pair of correlations of said recorded seismic signals and their corresponding source waveform." This last step is not a tangible result since the correlation is an abstract idea that could be performed by a person in their head. The final step does not produce a real world result or result in a physical transformation.

The last step of claim 21 states "to produce a correlated record that resembles a seismic data record from an impulsive source when correlated with the reference waveform." This last step is not a tangible result since the correlation is an abstract idea that could be performed by a person in their head. The final step does not produce a real world, tangible result or result in a physical transformation. The claim language

does not require that the record be produced; only that it is produced *when* correlated with a reference waveform. Since this last step is not a positive recitation of an actual step required in the method limitations, it cannot produce a tangible result for the claim limitations.

The last step of claim 28 states, "correlating said recorded seismic signals with said reference waveform." This last step is not a tangible result since the correlation is an abstract idea that could be performed by a person in their head. The final step does not produce a real world, tangible result or result in a physical transformation.

The last step of claim 35 states, "wherein a record that resembles a seismic record form an impulsive force can be produced by correlating." This last step is not a tangible result since the correlation is an abstract idea that could be performed by a person in their head. The final step does not produce a real world, tangible result or result in a physical transformation. The claim language does not require that the record be produced, only that it *can be* produced from the data. Since this last step is not a positive recitation of an actual step required in the method limitations, it cannot produce a tangible result for the claim limitations.

The last step of claim 38 states "summing the two correlated records." This last step is not a tangible result since the correlation is an abstract idea that could be performed by a person in their head. The final step does not produce a real world, tangible result or result in a physical transformation.

The dependent claims do not provide steps which produce a tangible result in the methods of the independent claims.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 21-27 and 35-37 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The "wherein said seismic signals produce a correlated record that resembles a seismic record from an impulsive source *when correlated with the reference waveform*" clause of claim 21 and the "wherein a record that resembles a seismic record from an impulsive source *can be produced*" clause of 35 provide language that suggests or makes optional but does not require steps to be performed or does not limit the scope of a claim or claim limitation (MPEP § 2106(II,C)). Accordingly, the metes and bound of the claims cannot be ascertained by one having ordinary skill in the art.

Conclusion

The cited prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott A. Hughes whose telephone number is 571-272-6983. The examiner can normally be reached on M-F 9:00am to 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on (571) 272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



SAH



JACK KEITH
SUPERVISORY PATENT EXAMINER